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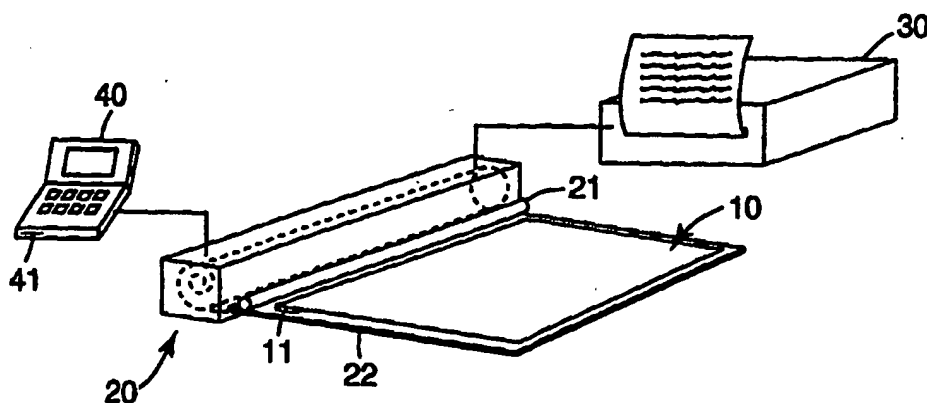
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(21) International Application Number: PCT/US97/21702 (22) International Filing Date: 1 December 1997 (01.12.97) (71) Applicant (for all designated States except US): MINNESOTA MINING AND MANUFACTURING COMPANY [US/US]; 3M Center, P.O. Box 33427, Saint Paul, MN 55133-3427 (US). (72) Inventor; and (75) Inventor/Applicant (for US only): LOYD, Richard, A. [GB/GB]; 3M United Kingdom PLC, Customer Technical Centre, Easthampstead Road, Bracknele, Berkshire RG12 1JE (GB). (74) Agents: PETERS, Carolyn, V. et al.; Minnesota Mining and Manufacturing Company, Office of Intellectual Property Counsel, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).		(81) Designated State: GB. Published <i>With international search report.</i>

(54) Title: METHOD OF DISPLAYING AND REPRODUCING INFORMATION IN A MEETING



(57) Abstract

The present invention provides a method of reproducing or storing information comprising the steps of: (a) providing a sheet (10) having a first surface (10a) capable of receiving information and a second surface (10b) opposite to said first surface and having on at least part thereof repositionable adhesive (11); (b) providing a scanner (20) including a scanning means (21) and a movable carrier (22); (c) providing a means capable of reproducing digital information (30) and/or a means capable of storing digital information (40); (d) providing information to said first surface (10a) of said sheet (10); (e) attaching said sheet with said repositionable adhesive to said movable carrier (22); (f) scanning said first major surface (10a) of said sheet (10) by transporting said movable carrier (22) with said sheet (10) past said scanning means (21) thereby obtaining the information contained on said first major surface of said sheet in a digital form; and (g) storing or reproducing said digital form of said information by said means capable of storing digital information (40) or said means capable of reproducing said digital information (30) respectively.

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METHOD OF DISPLAYING AND REPRODUCING INFORMATION IN A MEETING

Technical Field of the Invention

5 The present invention relates to a method for storing and/or reproducing information and in particular to a method for storing and/or reproducing information that is generated in meetings.

Background of the Invention

10 Various systems are known in the art for displaying information during meetings and seminars. Such systems include white boards, black boards and flip charts attached to an easel.

For example many large pad assemblies are known that include a multiplicity of aligned flexible sheets (i.e., typically paper sheets) in a stack which
15 are attached together along or adjacent aligned edges of the sheets, and include a stiff back card on which the stack is mounted so that the pad assembly can be supported at the front of a room on a support such as a presentation easel during a meeting and used to record lists of items or ideas generated during the meeting. During such use, typically one or more of the uppermost sheets on the pad, after
20 being written on, are either (1) bent or pivoted away from an underlying sheet so that they project over and are supported on an upper support edge of the back card and the underlying sheet can be written on, or (2) are separated from the stack so that the separated sheet or sheets can be positioned elsewhere, typically on the walls of the room to which they are attached by means such as a clip, pin or a
25 length of adhesive coated tape so that information on the separated sheets can easily be viewed by the participants of the meeting.

Commercially available pad assemblies comprise a multiplicity of flexible sheets disposed in a stack with the corresponding edges of the sheets aligned and with each sheet having a band of repositionable pressure sensitive adhesive coated
30 on its rear surface along aligned first edges of the sheets, and the band of

repositionable pressure sensitive adhesive on each sheet adhering it to the front surface of the adjacent sheet in the stack. Sheets removed from the pad assembly can be releasably adhered to a support surface by the bands of repositionable pressure sensitive adhesive on the sheets.

- 5 U.S. Pat. No. 5,153,041 discloses a pad assembly including a multiplicity of aligned flexible sheets attached together along one edge portion to form a stack from which any of several uppermost individual sheets can either be pivoted away from an adjacent sheet, or can be separated from the stack and releasably adhered to a support surface by repositionable pressure sensitive on the sheet that can
10 adhere well to many rough surfaces; which pad assemblies can be made large in size and to include a stiff back card whereby they can be supported at the front of a room during a meeting in a generally vertical position and used to record lists of items or ideas generated during the meeting. Preferably, when used as a flip chart, the pad assembly further includes a stiff back card to which the bottom most sheet
15 in the stack is attached.

- U.S. Pat. No. 5,565,253 discloses an easily assembled relatively compact easily portable dispensing assembly for dispensing lengths of sheet material (e.g., paper) from a roll of sheet material included in the dispensing assembly that can be adapted to be mounted on an end portion of a backboard that may be supported on
20 or included in a presentation easel or other support structure. The sheet material has strips of repositionable pressure sensitive adhesive coated on its rear surface by which the dispensed sheet material can first be removably adhered to the backboard adjacent the dispensing assembly while still attached to the sheet material on the roll to afford writing on the dispensed sheet material, and may subsequently be
25 separated from the sheet material on the roll, removed from the backboard, and removably adhered to another support surface to display the written material.

The above systems have the disadvantage that providing multiple copies to the participants and/or preparing a report of the meeting based on information written on the sheets is cumbersome because the sheets are typically large.

Another system known for displaying information during meetings are electronic boards that typically have a large white surface on which information can be written by a felt-tip. The information can then subsequently be copied on a small sheet, typically A4-size, by means of a scanning device that is built into the board. Some electronic boards also include the option of sending the information to a computer on which it can then be manipulated. An example of a commercially available electronic board of this type are PLUS® Copyboards.

From Panasonic there is also available a portable copyboard that can be mounted on an easel and that includes a roll of flexible material that has a white surface on which information can be written by a felt-tip. To write information on the flexible material, the roll is unwinded to make the white surface accessible. When there is a need to have a copy of the information provided on the surface, the user presses a button and the copyboard then winds the flexible material and concurrently scans the white surface. The information is then printed on a thermal printer which is included in the portable copyboard. This machine also allows for downloading of the information to a computer.

A disadvantage of these systems is however that whenever there is a need for a fresh surface, the writable surface of the copyboard needs to be wiped. Accordingly, the information is no longer available for display during the meeting and is only available in the form of a copy on a reduced size.

A still further system which is commercially available from MagnaPlan Corp. is an Interactive Flip Chart which coordinates the permanent physical record of flip chart sheets with electronic editing and distribution. The system holds a flip-chart such as described above on a special easel which attaches by cable to a computer. To record what is being written, the user places a marker into a cordless holder, then depresses the holder's button to activate an IR motion sensor, which captures the pen-stroke data. This allows for storage of the page information in a computer from which copies can then be generated and/or which allows editing of the information. While this system allows for displaying information on large

sheets in the meeting as well as providing copies of the information, the system is complicated.

Summary of the Invention

5 The present invention provides a method of reproducing or storing information comprising the steps of:

- (a) providing a sheet (10) having a first surface (10a) capable of receiving information and a second surface (10b) opposite to said first surface and having on at least part thereof repositionable adhesive (11);
- 10 (b) providing a scanner (20) including a scanning means (21) and a movable carrier (22);
- (c) providing a means capable of reproducing digital information (30) and/or a means capable of storing digital information (40);
- (d) providing information to said first surface (10a) of said sheet (10);
- 15 (e) attaching said sheet with said repositionable adhesive to said movable carrier (22);
- (f) scanning said first major surface (10a) of said sheet (10) by transporting said movable carrier (22) with said sheet (10) past said scanning means (21) thereby obtaining the information contained on said first major surface
- 20 of said sheet in a digital form; and
- (g) storing or reproducing said digital form of said information by said means capable of storing digital information (40) or said means capable of reproducing said digital information (30) respectively.

 The present invention further provides a method of reproducing or storing
25 information comprising the steps of:

- (a) providing a plurality of sheets (10), each sheet having a first surface capable of receiving information and a second surface opposite to said first surface and having on at least part thereof repositionable adhesive (11), said plurality of sheets being connected to each other by said repositionable adhesive to form a
- 30 stack (50) having a topmost sheet and a bottommost sheet;

- (b) providing a scanner (20) including a scanning means (21) and a movable carrier (22);
- (c) providing a means capable of reproducing digital information (30) and/or a means capable of storing digital information (40);
- 5 (d) attaching said stack to said movable carrier (22);
- (e) providing information to said first surface of said topmost sheet;
- (f) scanning said first major surface of said sheet by transporting said movable carrier (22) with said sheet past said scanning means (21) thereby obtaining the information contained on said first major surface of said sheet in a
- 10 digital form; and
- (g) storing or reproducing said digital form of said information by said means capable of storing digital information (40) or said means capable of reproducing (30) said digital information respectively.
- The invention also provides an apparatus (60) including:
- 15 (a) means for scanning (21);
- (b) a roll of receiving material (61), said receiving material having a first surface capable of receiving information, and a second surface opposite to said first surface and having a plurality of coatings of repositionable adhesive (62);
- (c) and means for winding said roll of receiving material.

20

Brief Description of the Drawings

The following drawings are provided to illustrate preferred embodiments of the present invention without however the intention to limit the invention thereto:

Figure 1 is a schematic drawing of a sheet (10) for use in connection with

25 the invention.

Figure 2 is a schematic drawing of a scanner (20) that includes a movable carrier (22) and a scanning means (21).

Figure 3 is a schematic drawing of a stack (50) of sheets (10) for use in this invention.

30 Figure 4 is a schematic drawing of an apparatus (60) of this invention.

Figure 5 is a schematic drawing of scanner (20) mounted on an easel and having attached to the movable carrier (22) a stack (50) of sheets (10).

Figure 6 is a schematic drawing illustrating the scanning operation using scanner (20) with a stack (50) of sheets (10) attached to the movable carrier (22).

5

Detailed Description

According to an embodiment of the present invention, there is provided a sheet (10) that can receive information on one major surface thereof (see Figure 1). The information can take any human readable form and may contain text, drawings
10 or images. Typically, the sheet is a paper sheet having a size of about 65cm width and about 80cm length. One surface (10a) of the sheet is adapted to be writable. The information can be written on the sheet (10) by a pencil, pen, felt-tip or can be printed thereon. The other major surface (10b) of the sheet opposite to the first major surface is provided with a coating of repositionable adhesive (11), typically a
15 repositionable pressure sensitive adhesive. The coating of repositionable adhesive is typically provided in the form of a band across the width of the sheet near one of the edges. Examples of sheets with repositionable adhesive include commercially available POST-IT® notes and POST-IT® meeting charts (available from 3M Company).

20 Via the repositionable adhesive, the sheet can be adhered to a movable carrier (22) of a scanner (20) as shown in Figure 2. The scanner (20) further includes a scanning means (21) that is capable of scanning information contained on the sheet so as to provide the information in a digital form. The scanning (21) means should have a width that is at least sufficient to accommodate the width of a
25 sheet to be scanned therein. Typically, the width of the scanning means (21) is at least 50cm or more to allow scanning of large paper sheets typically used in meetings. In case the sheets are of width smaller than the width of the scanning means (21), it may be possible to stick several sheets at once to the movable carrier (22). This can be of a particular advantage in case organisation charts are
30 constructed by means of repositionable notes. Scanning means (21) for use in

connection with the present invention are well known in the art and include conventional scanning bars. The scanning means (21) may be a black & white scanning means or may be capable of scanning colors. By adhering the chart on the movable carrier (22) the final chart can be scanned and multiple copies can be
5 generated therefrom. The movable carrier is preferably made of flexible material such that the carrier (22) can be transported past the scanning means (21) by winding the flexible material. Typically, the movable carrier will be transported under the scanning means at a constant rate. This can for example be accomplished by an electrical motor that engages a core to which the carrier is
10 attached. The flexible material may be for example of plastic such as polyester, polyvinylchloride or polyethylene. Scanners for use in connection with the present invention are commercially available from Panasonic.

Once the information is in a digital form, it can be sent to a means for reproducing the digital information (30) such as for example a printer. Examples
15 of printers include, thermal printers, laser printers, ink-jet printers, bubble jet printers and matrix printers. While Figure 2 depicts the printer as a device separate from the scanner (20), the printer may be combined with the scanner in the same housing as shown in Figures 5 and 6. The digital information can also be stored on a computer (40), for example on a magnetic or optical disk (41) included therein.
20 This offers the advantage that the information can be manipulated by suitable software and/or to include part or all of the meeting information in a final report generated by a word-processing software. It is furthermore possible to transmit the digital information over a computer network, such as for example intranet or internet, to one or more remote locations that may take part in a meeting.

25 In an alternative embodiment of the present invention, a plurality of sheets (10) each having repositionable adhesive (11) on one of its major surfaces and that are writable at the other major surface thereof are connected to each other to form a stack of sheets (50) (see Figure 3). Such a stack of sheets can be mounted to the movable carrier (22). As shown in Figure 5, the scanner (20) with the stack (50)
30 adhered to the movable carrier (22) may be mounted on an easel (70). A user can

then provide information to the topmost sheet and once the information thereon is complete, it can be scanned by transporting the movable carrier (22) past the scanning means (21) to obtain the information in a digital form. As shown in Figure 6, by winding the movable carrier (22) with the stack (50) thereon, the stack (50) is moved in the direction of the arrow shown in Figure 6 and the surface of the topmost sheet with the information thereon is passed along the scanning means (not shown in Figure 6) so as to affect scanning and obtaining the information in digital form. The amount of sheets that can be contained in a stack (50) will depend on the particular design of the scanner used, in particular the thickness of the movable carrier and space between the carrier and scanning means, and the thickness of the individual sheets so as to allow winding of the stack (50) together with the movable carrier (22). Typically, a stack of sheets may contain between 5 and 20 sheets.

The obtained digital information can then be processed as described above. The movable carrier can subsequent to the scanning operation be unwinded either automatically or manually and the topmost sheet provided with the information can thereafter be peeled from the stack and for example adhered to a wall of a meeting room. At the same time, a fresh sheet from the stack is revealed and can be provided with new information. Accordingly, a meeting can be run in the conventional way using repositionable meeting charts while providing the advantage that the generated information can also be reproduced on the spot for the attendees of the meeting. Moreover, by storing the information on a computer (40), generating a meeting report including the charts or part thereof subsequent to the meeting becomes very easy. Also, as shown in Figures 5 and 6, the scanner can be designed to be portable and can be mounted to a wall or presentation easel.

In a still further embodiment of the present invention, a receiving material (61) is provided in the form of a roll. The receiving material, which may be paper or plastic film, can be provided with information on one of its major surfaces and on the major surface opposite thereto a plurality of coatings of repositionable adhesive (62). Preferably, the coatings of repositionable adhesive are provided

across the width of the receiving material and are provided at a constant distance from each other. Alternatively, the repositionable adhesive may be provided longitudinal along one or both sides of the receiving material. Such a roll of receiving material is provided in an apparatus (60) that includes a scanning means

5 (21) and means for winding the roll such as an electrical motor engaging the core of the roll of receiving material. If it is desired to write information on the receiving material, a user can unwind a desired amount of receiving material from the roll and write the information on the receiving material. Once the information is complete, the means for winding the roll is activated to transport the receiving

10 material with the information thereon past the scanning means (21) so as to cause scanning of the information and providing the information in digital form. The user can thereafter unwind the roll again and tear the written part from the apparatus. Due to the repositionable adhesive at the back of the receiving material, the information can be stuck to a wall of the meeting room. In a preferred

15 embodiment, the apparatus may also include a means for unwinding the roll to a predetermined length. Preferably, such length will be such that at least one band of repositionable adhesive coating is unwound from the roll.

CLAIMS

1. A method of reproducing or storing information comprising the steps of:
 - 5 (a) providing a sheet having a first surface capable of receiving information and a second surface opposite to said first surface and having on at least part thereof repositionable adhesive;
 - (b) providing a scanner including a scanning means and a movable carrier;
 - 10 (c) providing a means capable of reproducing digital information and/or a means capable of storing digital information;
 - (d) providing information to said first surface of said sheet;
 - (e) attaching said sheet with said repositionable adhesive to said movable carrier;
 - 15 (f) scanning said first major surface of said sheet by transporting said movable carrier with said sheet past said scanning means thereby obtaining the information contained on said first major surface of said sheet in a digital form; and
 - (g) storing or reproducing said digital form of said information by said
20 means capable of storing digital information or said means capable of reproducing said digital information respectively.
2. The method according to claim 1 wherein said means capable of reproducing digital information is a printer and said digital information is
25 reproduced by printing.
3. The method according to claim 1 wherein said means capable of storing said digital information is a computer including a magnetic or optical disk.

4. The method according to claim 1 wherein said movable carrier is a flexible material and wherein said movable carrier is transported under said scanning means by winding said movable carrier.

5 5. A method of reproducing or storing information comprising the steps of:

- (a) providing a plurality of sheets, each sheet having a first surface capable of receiving information and a second surface opposite to said first surface and having on at least part thereof repositionable adhesive, said plurality of sheets
10 being connected to each other by said repositionable adhesive to form a stack having a topmost sheet and a bottommost sheet;
- (b) providing a scanner including a scanning means and a movable carrier;
- (c) providing a means capable of reproducing digital information and/or
15 a means capable of storing digital information;
- (d) attaching said stack to said movable carrier;
- (e) providing information to said first surface of said topmost sheet;
- (f) scanning said first major surface of said sheet by transporting said movable carrier with said sheet past said scanning means thereby obtaining the
20 information contained on said first major surface of said sheet in a digital form; and
- (g) storing or reproducing said digital form of said information by said means capable of storing digital information or said means capable of reproducing said digital information respectively.

25

6. The method according to claim 5 wherein said stack is attached to said movable carrier by repositionable adhesive contained on the second surface of said bottommost sheet.

7. A method of reproducing or storing information comprising the steps of:

- (a) providing a roll of receiving material, said receiving material having a first surface capable of receiving information, and a second surface opposite to said first surface and having a plurality of coatings of repositionable adhesive;
- (b) providing means for winding said roll of receiving material;
- (c) providing a scanner including scanning means;
- (d) providing a means capable of reproducing digital information and/or a means capable of storing digital information;
- (e) unwinding part of said roll of receiving material and providing information to said first surface of said receiving material;
- (f) winding said roll of receiving material by said means for winding thereby transporting said receiving material past said scanning means to obtain the information provided to said first major surface of said receiving material in a digital form; and
- (g) storing or reproducing said digital form of said information by said means capable of storing digital information or said means capable of reproducing said digital information respectively.

8. An apparatus including:

- (a) means for scanning;
- (b) a roll of receiving material, said receiving material having a first surface capable of receiving information, and a second surface opposite to said first surface and having a plurality of coatings of repositionable adhesive;
- (c) and means for winding said roll of receiving material.

9. The apparatus according to claim 8 wherein said apparatus further includes means for reproducing digital information.

10. The apparatus according to claim 9 wherein said means for reproducing digital information is a printer.

11. The apparatus according to claim 8 further including
5 communication means allowing to transmit digital information to a computer.

12. The apparatus according to claim 8 wherein said apparatus further includes means for storing digital information.

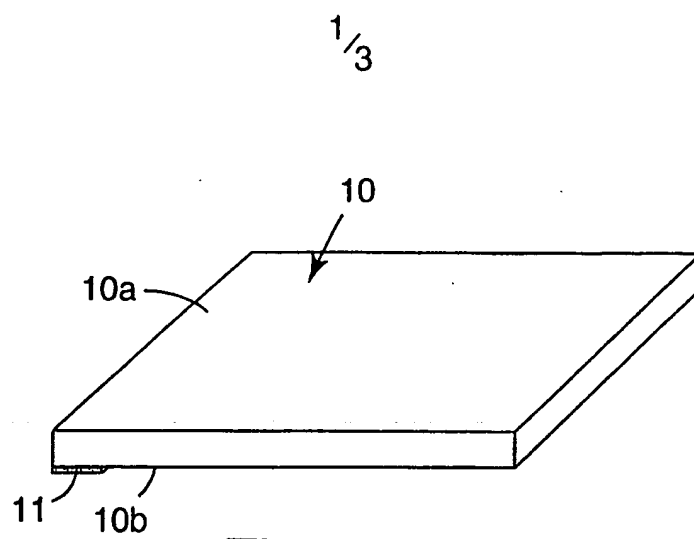


Fig.1

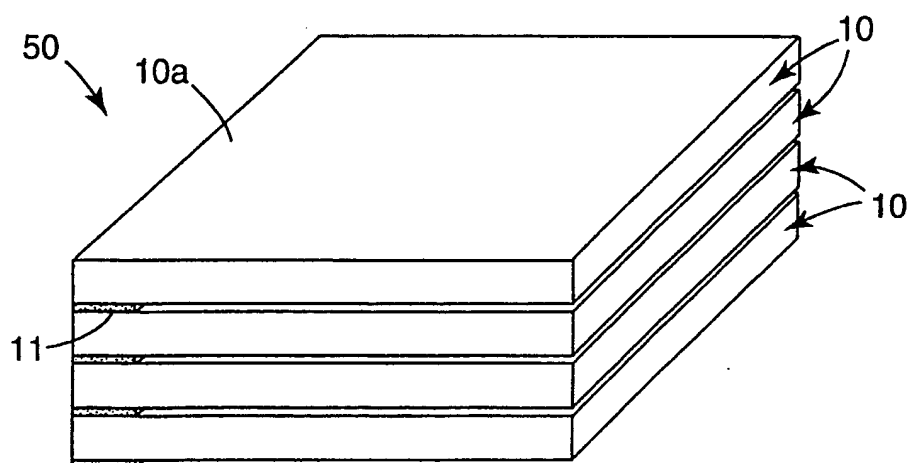
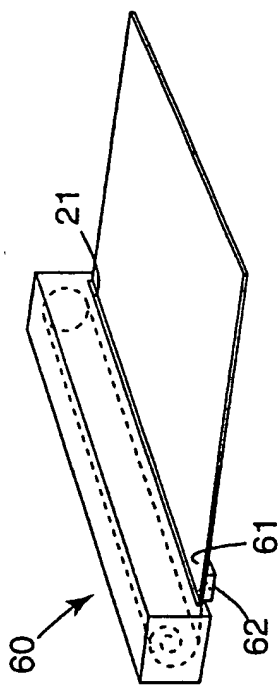
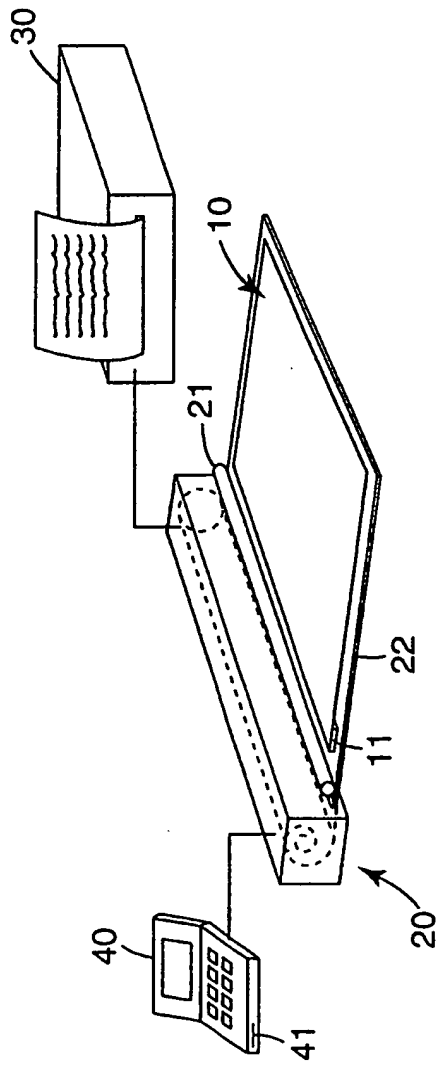


Fig.3



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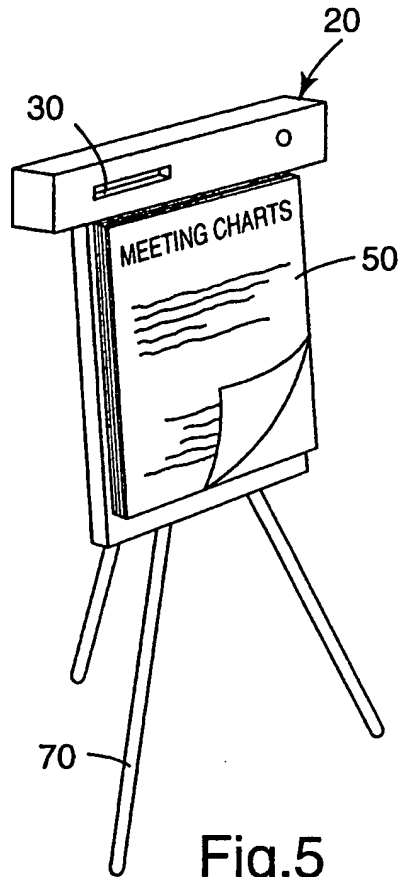


Fig.5

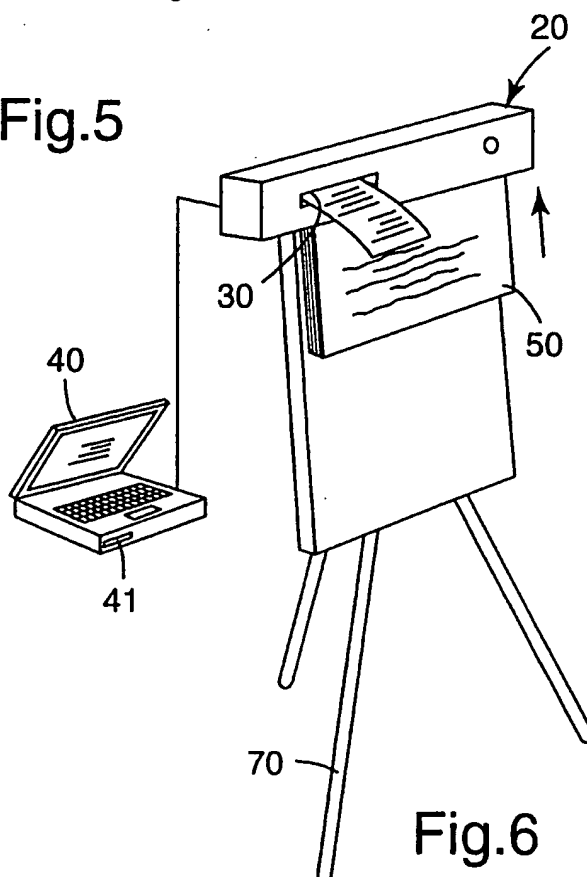


Fig.6

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 97/21702

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04N1/00 B42D5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 H04N B42D G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	WO 97 15891 A (NUMONICS CORP) 1 May 1997 see the whole document ---	1,5,7,8 2,3,9-12
Y	EP 0 365 712 A (MINNESOTA MINING & MFG) 2 May 1990 see the whole document ---	1,5,7,8
A	"PERIPHERAL HARDWARE" MACHINE DESIGN, vol. 63, no. 13, 1 June 1991, pages 759-760, 772, 774, 776, 781 - 782, 784, 78 759 - 760, , XP000349528 see the whole document ---	1-12
A	WO 97 05736 A (ELONEX PLC) 13 February 1997 see the whole document ---	1,2,5
-/-		

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☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

20 March 1998

Date of mailing of the international search report

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Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 207 581 A (BOYD STEVEN L) 4 May 1993 see abstract	1,4,7,8
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 97/21702

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BRM# 4855-04US

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COUNTRY	US	UNITED STATES	TITLE		PRIOR	10/25/2001
NEW/CON	NEW	SERIAL#	10/032,831	PICTURE MATTE AND GRAPHIC IMAGE DISPLAY DEVICE	MAIL	10/25/2001
RELATED		PATENT#			FILE	10/25/2001
TYPE	UTL	STATUS	PENDING		PUBL	
CLIENT	04855	Noble Tile & Vessel Inc.		1	CREF	
AGENT					AREF	
					EXP	10/25/2021
					1ST	10/25/2001

ID	O	ACTION	BASE	DUE IN	DUE	EXTNS	FINAL	EXT	RESPONSE	CALL	1	2	P
PC	N	POST CARD CHECK	10/25/2001	1 M	11/25/2001	2 1	1/25/2002	2	1/10/2002	0 M	Y	Y	Y
DS	N	INF DISCLOSURE STMT	10/25/2001	3 M	1/25/2002	6 1	7/25/2002	1		1 M	Y	Y	Y
FS	N	FILG RCPT STATUS CHK	10/25/2001	3 M	1/25/2002		1/25/2002	0	1/29/2002	0 M	Y	Y	Y
G2	N	MISSING PARTS (2 MO)	1/29/2002	2 M	3/29/2002	5 1	8/29/2002	0		1 M	Y	Y	Y
6M	N	6 MO. FOR. FILNG REM	10/25/2001	6 M	4/25/2002		4/25/2002	0		0 M	Y	Y	Y
9M	N	9 MO. FOR. FILNG REM	10/25/2001	9 M	7/25/2002		7/25/2002	0		0 M	Y	Y	Y
11	N	11 MO FOR FILNG REM	10/25/2001	11 M	9/25/2002		9/25/2002	0		0 M	Y	Y	Y
FO	N	FOR FILING DEADLINE	10/25/2001	12 M	10/25/2002		10/25/2002	0		3 M	Y	Y	Y
PU	N	PUBLICATION	10/25/2001	18 M	4/25/2003		4/25/2003	0		1 M	Y	Y	Y
SC	N	STATUS CHECK	10/25/2001	18 M	4/25/2003		4/25/2003	0		1 M	Y	Y	Y

INVENTORS

Wynne NOBLE

USER-DEFINABLE FIELDS		PATENT FIELDS	
KEYWRD		SMALL ENTITY	Yes
TXT2		CLAIMS	
TXT3		PAY	
		ART UNIT	
		EXAMINER	
		CONFIRM#	

P01538US00 ENTERED 11/6/2001 MODIFIED 2/8/2002 BY FE ATTORNEYS FJD / SH / AP